Appendix O

Unpublished Sources Cited in the Hanford Site Solid (Radioactive and Hazardous) Waste Environmental Impact Statement

Appendix O

Unpublished Sources Cited in the Hanford Solid (Radioactive and Hazardous) Waste Environmental Impact Statement

This appendix contains sources such as personal communications, memos, and other reference material. These sources are listed in alphabetical order as they were called out in the text of this Hanford Site Solid (Radioactive and Hazardous) Waste Environmental Impact Statement, and each new source starts on a face page.

ERDF Total Radionuclide Inventory (Curies)

Radionuclide	1996	1997	1998	1999	2000	Total	Projected to 10 M Tons
Am-241	0.006	0.004	0.001	0.059	0.905	3.082	11.0
Am-243	0.000	0.002	0.145	0.000	0.000	0.147	0.5
*C-14	12.353	34.042	32.334	14.915	38.450	28.823	102.6
C-14A	0.086	3.097	1.332	0.003	0.233	4.751	16.9
Cs-134		0.002	0.015	0.020	0.000	0.038	0.1
Cs-137+Ba-137	108.451	207.596	361.664	182.761	191.949	1296.421	4,614.6
Co-58	0.074	0.079	0.191	0.441	0.000	0.785	2.8
Co-60	30.527	273.271	135.254	96.965	166.384	1026.804	3,654.9
Eu-152	107.218	509.581	345.380	1786.761	1505.096	4690.929	16,697.2
Eu-154	93.497	288.064	87.849	413.532	337.296	1369.913	4,876.1
Eu-155	7.452	17.393	3.828	35.121	22.422	96.014	341.8
H-3	27.199	165.700	669.831	525.617	1314.068	2979.926	10,606.9
Np-237		0.000	0.000		0.021	0.076	0.3
Ni-63		109.175	490.919	942.419	614.609	2518.072	8,963.0
Ni-63A	0.821	0.713	0.339	0.586	1.400	3.059	10.9
Nb-94				0.009	0.005	0.014	0.1
Pu-238	0.253	1.170	1.781	0.438	1.371	6.613	23.5
Pu-239	16.979	21.329	8.984	8.106	5.665	67.293	239.5
Pu-240	3.514	6.104	4.855	2.463	3.049	22.776	81.1
Pu-241	53.751	154.368	432.851	277.901	244.797	1455.622	5,181.2
Pu-242	0.000	0.000	0.000	0.000	0.001	0.002	0.0
Ra-226	0.002	0.011	0.003	0.010	0.016	0.045	0.2
Ra-228		0.000				0.000	0.0
Na-22		0.000	10.201			10.201	36.3
Sr-90 + Yt-90	28.351	48.055	133.805	324.711	116.402	798.794	2,843.3
Tc-99	0.001	13.399	1.273	32.792	0.304	48.215	171.6
Th-228		0.058	0.191	0.009	0.001	0.259	0.9
Th-232		0.000	0.212	0.010	0.003	0.226	0.8
U-233/234	0.000	0.047	0.178	30.531	9.372	40.156	142.9
U-235	0.395	5.544	7.337	0.716	1.333	15.339	54.6
U-238	0.667	12.278	72.309	27.601	27.009	139.975	498.2
TOTAL CURIES	490.797	1871.072	2803.064	4703.497	4601.164	16624.370	59,173.7
Month, Yr:	Mar-2000						
Tons Waste Received=	2809417		Projection Factor: 10,000,000 T/2,809,417 T =				3.559
Grams Waste Rec'd =	2.549E+12						
Avg. Concentration =	6.523E-09	Ci/gram					

4/23/2002

CURIES Projection.xls

Evans, J. 2002. Personal Communication from Jim Evans, Shrub Steppe Ecologist, The Nature Conservancy, Seattle, Washington, to Jim Becker, Research Scientist, PNNL, Richland, Washington, regarding the existence of an unnamed population of rare plants in Area C. February 15.

A non-specific 'rare plant occurrence' polygon appears on a GIS map included in the Final Report of the Biodiversity Inventory and Analysis of the Hanford Site (TNC 1999). The polygon does not correspond to (or fall within) any areas searched for rare plants, which are themselves represented by polygons in maps included in TNC (1999), nor in GIS layers from which these maps were apparently made.

In the TNC GIS files, the 'rare plant occurrence' polygon shows up in the 'Rare Plants, 1994' layer (and again in the 'all years' layer), but not in layers of years following 1994 (rare plant surveys were conducted in 1995 and 1997 as well as in 1994). Unfortunately, there were no plant species attributes associated with the polygon in the GIS files Jim Evans had seen.

Jim Evans went through the 1995 rare plant report ('A Rare Plant Survey of the Hanford Nuclear Reservation') -- documenting the 1994 field season -- and did not find any rare plant locations mapped close to
the area in question. Jim Evans glanced through the 1996 and 1997 reports more quickly but did not find any indication that populations were mapped in the area during those periods either.

Jim Evans had discussions with both principals of the rare plant surveys, Florence Caplow and Katie Beck, and neither believed rare plants were searched for or mapped in the area in question. A detailed search by Katie of original project field maps and other documents bore this out.

Jim Evans said he had been suspicious that the polygon was a mistake all along, and so far none of the evidence he has uncovered has done anything to refute this suspicion. Nevertheless, he was glad it was looked into in some depth to be sure.

Both Florence and Katie pointed out strongly that the fact that the area was not searched means only that; it does not mean there are no rare plants in the area. The Hanford Site is too large for a ground survey of all areas. It was Jim Evans' hope that a ground search of Artea C would be made prior to any large scale disturbance of the area. Jim Evans was glad I indicated that this will be the case.

HCRC# 89-200-008. Cadoret, N. A. and J. C. Chatters. September 1989. Archaeological Survey of the 200 East and 200 West Areas, Hanford Site, Washington. Unpublished report prepared for the U.S. Department of Energy. Copy on file at Pacific Northwest National Laboratory, Richland, Washington.

For Approval Of

Name	Approved	Date
RK Woodruff	RKW	4/24

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Pacific Northwest Laboratories
P.O. Box 999
Richland, Washington U.S.A. 99352
Telephone (509) 375-3886
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Facsimile (509) 375-2718

bcc: JC Chatters
RH Gray
RK Woodruff
File/LB

April 21, 1989

Mr. G. C. Evans
Environmental Division
RCRA Permits Section
Westinghouse Hanford Company
H4-57
Richland, WA 99352

Dear Mr. Evans:

CULTURAL RESOURCES REVIEW OF THE LOW-LEVEL BURIAL GROUNDS PERMIT APPLICATION, HCRC #89-200-008

Reference 1. Letter dated October 3, 1988, from J. C. Chatters to M. T. Black.

In response to your request dated April 17, 1989, staff of the Hanford Cultural Resource Laboratory (HCRL) conducted a cultural resources review of the low-level burial grounds that are included in permit application DOE/RL 88-20. These burial grounds include 218-E-10 and 218-E-12B in the 200 East Area of the Hanford Site (Figure 1), and 218-W-3A, 218-W-3AE, 218-W-4B, 218-W-4C, 218-W-5, and 218-W-6 in the 200 West Area of the Hanford Site (Figure 2). The burial grounds will cover an area of 518 acres. Maximum depth of excavation within the grounds will be 30 ft.

The majority of the burial grounds have been extensively disturbed by previous borrowing and burying activities at the grounds. However, portions of 218-E-12B, 218-W-5 and 218-W-6 are undisturbed. These areas were surveyed by the HCRL in the summer of 1988 as part of HCRC #88-200-038 (Reference 1, attached). The only cultural resources identified within the perimeter of these burial grounds were two tin cans, located in the northwest corner of 218-W-6. These are not considered to be significant. An extant segment of the Historic White Bluffs Road, which is potentially eligible for the National Register, is located between 50 m and 200 m to the east of 218-W-6. No artifacts were found along this segment of the road during the same survey mentioned above. The road was located in the southern tip of 218-W-6, but has been destroyed by previous ground disturbing activities.

It is the finding of the HCRL staff that the proposed action will have no impact on any historic property. Further damage to adjacent portions of the White Bluffs Road must be avoided. Monitoring of the excavations by an archaeologist is not required. The workers, however, should be directed to watch for cultural properties (e.g., bones, artifacts) during earth moving activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL archaeologist has been notified, has assessed the

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significance of the find and, if necessary, has arranged for mitigation of impact to the find. This is a Class III and V case, new action in disturbed ground in a low-sensitivity area, and new action.

This letter constitutes cultural resource clearance for your project as described above. A copy has been sent to Kevin Clarke of Site and Laboratory Management Division, DOE-RL as official documentation of clearance.

Please call me if you have any questions.

Very truly yours,

Natalie A. Cadoret
Technical Specialist
Cultural Resources Project
GEOSCIENCES DEPARTMENT

NAC:mae

Attachment

cc: KV Clarke, DOE-RL (2)

Concurrence:

J. G. Chatters, Ph.D., Manager
Cultural Resources Project

HCRC #89-200-023. Minthorn, P. E. March 1990. Cultural Resources Review of the Effluent Retention and Treatment Complex (ERTC). Unpublished report prepared for Westinghouse Hanford Company. Copy on file at Pacific Northwest National Laboratory, Richland, Washington.

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Telephone (509) 376-8107

March 30, 1990

Mr. E. T. Trost, B4-64
Site Planning Group
Westinghouse Hanford Company
Richland, WA, 99352

Cultural resources found

Dear Mr. Trost:

CULTURAL RESOURCES REVIEW OF THE EFFLUENT RETENTION AND TREATMENT COMPLEX (ERTC), HCRC #89-200-023

Ref. 1: *Archaeological Survey of the 200-East and 200-West Areas, Hanford Site, Washington.* PNL 7264 Pacific Northwest Laboratory, Richland, Washington, by J. C. Chatters and N. A. Cadoret, 1990.

Ref. 2: *Cultural Resources Survey and Exploratory Excavations for the Proposed Skagit/Hanford Nuclear Power Project.* ERTC Northwest Inc., Seattle, 1982.

In response to your request dated August 8, 1989, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the proposed project located on the Hanford Site in Benton County, Washington. According to information you supplied, an area of approximately 84.9 ha will be developed to the northeast of the present boundaries of the 200 East Area (see Figure 1). Proposed facilities within this parcel of land include the Effluent Retention and Treatment Facilities (ERTF) (a.k.a. the Liquid Effluent Retention Facility [LERF]) (Site A), and Purge Water Projects. A pipeline will also be constructed between the 200 East and 200 West Areas and possibly from the ERTF to the Columbia River (the East River Disposal Option) a total of 26 km.

The proposed project site is located in predominantly undisturbed ground that had not been previously surveyed for cultural properties. Commonly known as the 200-Area Plateau, the vicinity of the 200 areas is characterized by broad, rolling upland flats. A lower-lying basin lies between the 200-Area Plateau and Gable Mountain and extends into an area of stable and semi-active dune fields to the east, adjacent the Columbia River. The area is dry, with the nearest nonriverine perennial source of water being West Lake, located 3.3 km to the north of the 200-East Area. Surface sediments are composed of eolian silty sand overlying glacio-fluvial sand and gravels. The vegetation is a shrub-steppe community dominated by sagebrush, with an understory of grasses and forbs. Average ground cover during survey was approximately 30-40%.

Our literature and records review showed that two archaeological sites had been recorded in the vicinity of the proposed project. In the 200-W Area, a segment of the pipeline route intersects the historic White Bluffs Road and at the rivers' edge, where the East River Disposal Option outfall area terminates, is archaeological site 45BN307.

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P.E. Minthorn and N.A. Cadoret conducted a pedestrian survey of the proposed project area from 11-7-89 to 1-10-90, using a 20-m transect spacing. When archaeological properties were encountered, the survey was intensified to locate the approximate boundaries of each site.

SURVEY RESULTS

No cultural properties were identified in the area designated for the ERTC or the LERF. However, five prehistoric sites were encountered along the proposed pipeline route. In the East River Disposal Option area, two archaeological sites were recorded, temporarily designated HT-89-029 and HT-90-002. HT-89-029 is a Quilomene Bar Phase site with an age range of 2500-1500 yrs. B.P. and includes a scatter of mammal bone fragments, fire cracked rocks, and one diagnostic projectile point. HT-90-002 is an aboriginal trail extending 140m northeast-southwest. Another archaeological site HT-89-030 was recorded in the pipeline route that extends east-west on the northern edge of the 200-West and 200-East areas and consists of a cairn made from large angular basalt cobbles. On the portion of the pipeline connecting the southern edges of the 200-West and 200-East Areas, two archaeological properties, HT-89-031 and HI-89-016, were recorded. HT-89-031 consists of a small concentration of fire-cracked rock and mammal bone fragments and HI-89-016 is an isolated cobble tool.

The two previously recorded sites are intersected by the project's pipelines, the White Bluffs Road by the line between the northern edges of the 200- East and 200-West Areas, and archaeological Site 45BN307 by the East River Disposal Option; both require special consideration. The HCRL has determined that the historic White Bluffs Road meets criteria for eligibility for nomination to the National Register of Historic Places (NRHP) and is, therefore accorded certain protective measures. Archaeological site 45BN307 previously has been found to meet criteria for nomination to the NRHP, based on archaeological materials present their scientific potential for contributing to an understanding of local and regional prehistory (see Reference 2). Exploratory excavations at 45BN307, conducted by ERTEC, Inc. in 1979, revealed a previously undisturbed prehistoric cultural deposit dating from approximately 1500 B.P. to historic times. However, review of the data reported by ERTEC shows that this conclusion is incorrect. Their records show that this site contains late Frenchman Springs Phase ca 3500-2800 B.P. and a Vantage/Cascade Phase ca 8000-4000 B.P. manifestations. Reconnaissance of the site for this project also substantiated this assessment by locating a probable Cascade Phase artifact. This finding only enhances the site's claim to statutory protections.

RECOMMENDATIONS

Recommendations for the historic White Bluffs Road include the road and a culturally sensitive zone 200-m wide. Procedure requires that proposed projects located near the road be designed to minimize any foreseeable impacts upon the road and the area surrounding it. If an impact is unavoidable, we will have to reach an agreement with the Washington State Historic Preservation Officer (SHPO) and Advisory Council for Historic Preservation that would result in a finding of no adverse effect. It appears, however, that the road has already been disturbed in the location where it is intersected by the pipeline, so construction of the pipeline will have no new effects on the road.

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Archaeological site 45BN307 will require further evaluation. Because previous excavations at the site have established the site's scientific value, it is likely that the proposed pipeline would have an effect on it. To avoid having an adverse effect, some mitigation measures, probably data recovery along the construction corridor, would be necessary. Agreements on a data recovery plan will need to be reached with the SHPO and Advisory Council for Historic Preservation before your the East River Disposal Option can proceed in this location.

Of the sites recorded during the survey for this project, all appear to be surficial in nature and encompass relatively small areas, indicating only a brief occupational time span. Prehistoric site #HT-89-030, a large angular basalt rock cairn; #HT-89-029, a Quilomene Bar Phase site; #HT-90-002, an aboriginal trail; and #HT-89-031, a small concentration of fire-cracked rock and mammal bone fragments; are either in direct line or are on the peripheral margins of the proposed pipeline route. Each of these sites will require further evaluation to determine significance, if any, the appropriate protective measures, which may simply entail realignment of the pipeline route to avoid them. Prehistoric isolate #HI-89-016, a modified cobble, will collected and no further protective measures for this site will be necessary.

FINDING

It is the finding of the Hanford Cultural Resources Laboratory staff that there are no historic properties in the parcel of land designated for the ERTF/LERF adjacent the 200 East Area. This project is, therefore, cleared of cultural resource concerns. Monitoring of the excavations by an HCRL staff member is not required.

Pipelines associated with this project can be expected to have an effect on as many as five archaeological sites; three are in the path of the East River Disposal Option and two on routes between the 200 areas. Site 45BN307 meets criteria for nomination to the national Register of Historic Places, and procedures for avoiding or mitigating effects to the site will have to be followed if the East River Disposal Option is chosen. The HCRL is currently conducting evaluations of the other four sites.

This letter constitutes cultural resource clearance for the Effluent Retention Treatment Facility (or LERF) *only*. Further evaluation is required for those sites within the pipeline route before your project may proceed in those locations. A copy of this letter has been sent to Kevin Clarke of Site and Laboratory Management Division, DOE-RL.

Please keep us apprised of any new developments of your project that may require additional survey. If you have any questions, you may contact Jim Chatters' office at 376-9469.

Thank you,

P.E. Minthorn

Phillip E. Minthorn
Cultural Resources Project

PEM/cm

Attachments

HCRC #93-200-074. Crist, M. E., and M. K. Wright. June 1993. *Cultural Resources Review of the Solid Waste Retrieval Complex, Phase I (W-113) and Enhanced Radioactive and Mixed Waste Storage Facility Project.* Unpublished report prepared for Westinghouse Hanford Company. Copy on file at Pacific Northwest National Laboratory, Richland, Washington.

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Telephone (509)
372-1791

June 28, 1993

Cultural Resources Present

Mr. Ben Floyd
Westinghouse Hanford Company
Solid Waste Disposal
P. O. Box 1970/N3-13
Richland, WA 99352

CULTURAL RESOURCES REVIEW OF THE SOLID WASTE RETRIEVAL COMPLEX, PHASE I (W-113) AND ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY PROJECT. HCRC #93-200-074.

Dear Ben:

In response to your request received June 25, 1993, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project, located in the 200 Area of the Hanford Site. According to the information that you supplied, the project entails constructing and operating the Phase I Retrieval complex for retrieving transuranic solid waste, which will include several support buildings and facilities. It will also involve the construction and operation of a Phase V Facility for storage of waste containers.

Our literature and records review shows that the project area has been previously surveyed (HCRC #88-200-005). Two isolates and one historic site were located on the survey. The isolates, one .38 caliber cartridge and one broken cryptocrystalline flake, and the site, consisting of one can and blue glass fragments, are not eligible for the National Register of Historic Places (NRHP). However, the historically significant White Bluffs Road will run through the southeast corner of the proposed project area (see attachment). Although the section of road that will pass through the project has been grated and does not appear to be eligible for the NRHP, a report of eligibility needs to be written (currently in progress by our office) and submitted to the State Historic Preservation Officer (SHPO), who then has thirty days to respond to our findings. Until that time, the road needs to be avoided by this and other projects.

It is the finding of the HCRL staff that the White Bluffs Road and a 100 meter buffer zone on both sides of it needs to be avoided by this project if at all possible. If the avoidance is possible, we find that there are no known significant cultural resources in the remaining project area. The workers, however, must be directed to watch for cultural materials (e.g., bones, artifacts) during excavations. If any are encountered, work in the vicinity of the discovery must stop until an HCRL archaeologist has been notified, assessed the significance of the find, and, if necessary, arranged for mitigation of the impacts to the find. If avoidance of the road is possible, please send us a map of the new project boundaries.

If the avoidance is not possible, please let us know immediately so that we can discuss the situation. This is a Class III case, defined as a project that involves new construction in a disturbed, low-sensitivity area, and a Class IV case, new construction in a disturbed, high-sensitivity area.

A copy of this letter has been sent to Charles Pasternak, DOE, Richland Operations Office, as official documentation. If you have any questions, I can be reached at 372-1791. Please use the HCRC# above for any future correspondence concerning this project.

Very truly yours,

M. E. Crist

M. E. Crist
Technician
Cultural Resources Project

Concurrence: JJ Longnecker for MK Wright
M. K. Wright, Scientist
Cultural Resources Project

cc: C. R. Pasternak, RL (2)
File/LB

Attachment

HCRC #95-200-104. Cadoret, N. A., and P. R. Nickens. May 1995. *Cultural Resources Review of the Solid Waste Retrieval Complex, Enhanced Radioactive and Mixed Waste Storage Facility, Infrastructure Upgrades, and Central Waste Support Complex.* Unpublished report prepared for Westinghouse Hanford Company. Copy on file at Pacific Northwest National Laboratory, Richland, Washington.

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May 15, 1995

No Known Historic Properties

Ms. P. C. Berlin
Westinghouse Hanford Company
P. O. Box 1970/MSIN N3-13
Richland, WA 99352

Dear Ms. Berlin:

CULTURAL RESOURCES REVIEW OF THE SOLID WASTE RETRIEVAL COMPLEX, ENHANCED RADIOACTIVE AND MIXED WASTE STORAGE FACILITY, INFRASTRUCTURE UPGRADES, AND CENTRAL WASTE SUPPORT COMPLEX. HCRC #95-200-104

In response to your request received May 3, 1995, staff of the Hanford Cultural Resources Laboratory (HCRL) conducted a cultural resources review of the subject project, located in the 200 West Area of the Hanford Site. The entire project area has been previously submitted to the HCRL for review (HCRC #88-200-005, #92-200-001, #93-200-074, #94-200-169, #95-200-039), except for the future sewer drainfield located on the west edge of the project area, west of Eugene Ave and north of 22nd St.

Our literature and records review shows that portions of the project area have been disturbed by previous Hanford Site activities. It is very unlikely that any intact archaeological materials exist in such disturbed ground. Most of the project area located in undeveloped ground, except for the future sewer drainfield, has been surveyed previously by HCRL staff (HCRC #88-200-005 and HCRC #88-200-038). A portion of the historic White Bluffs Road is within the proposed complex. This road has been determined to be eligible for listing on the National Register of Historic Places (Register), however, that section of the road located within the fenced 200 West Area has been found to be a non-contributing element. Therefore, this portion of the road is not considered to be a historic property. One site and two isolated artifacts were also found during the surveys. The two artifacts were collected and the site, a historic trash scatter, is not eligible for listing on the Register.

A survey of the proposed future sewer drainfield was completed by HCRL staff on May 9 and 12, 1995. No archaeological sites or isolates were recorded during this survey. The attached map shows the areas that have been surveyed in the project vicinity.

It is the finding of the HCRL staff that there are no known historic properties within the proposed project area. The workers, however, must be directed to watch for cultural materials (e.g., bones, artifacts) during all work activities. If any are encountered, work in the vicinity of the discovery must stop until an HCRL archaeologist has been notified, assessed the significance of the find, and, if necessary, arranged for mitigation of the impacts to the find. The HCRL must be notified if any changes to project location or scope are anticipated. This is a Class III and V case, defined as a project which involves new construction in a disturbed, low-sensitivity area and in an undisturbed area.

Battelle

Copies of this letter have been sent to Dee Lloyd, DOE, Richland Operations Office, as official documentation. A survey report, which will also be transmitted to Dee Lloyd, will follow this letter shortly to complete the cultural resources documentation. If you have any questions, please call me on 376-8107. Please use the HCRC number above for future correspondence concerning this project.

Very truly yours,

N. A. Cadoret
Technical Specialist
Cultural Resources Project

Concurrence:
P. R. Nickens, Project Manager
Cultural Resources Project

Attachment

cc: D. Lloyd, RL (2)
T. Clark
[redacted]e/LB

Neitzel, D. A. 2002a,b,c. Personal communication with Debbie Hickey (Richland School District), Connie Bailey (Pasco School District), and Maggie Mahan (Kennewick School District).

Rhoads, Kathleen

From: Neitzel, Duane A
Sent: Wednesday, March 20, 2002 2:29 PM
To: Duncan, Joanne P;;Rhoads, Kathleen
Subject: Homeshcooling Numbers

I called the school districts in the Tri Cities to get estimates of the number home schooled kids. I made these calls to respond to the request that we add this information to Section 4 of the Solid Waste EIS.

I received the following information:

Richland 205 students via phone call on Tuesday, March 20, 2002 from Debbie Hickey, Richland School District, 942-2051
Pasco 113 students via phone call on Monday, March 19, 202 from Connie Bailey, Pasco School District, 509/543-6722
Kennewick 226 students via phone call on Monday, March 19, 2002 from Maggie Mahan, Kennewick School District, 509/585-3060

All three women said that this information is not posted or reported elsewhere for further citation of the source.

Duane A. Neitzel
Battelle Northwest
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voice 509/376-0602
fax 509/376-2400
email duane.neitzel@pnl.gov <mailto:duane.neitzel@pnl.gov>
for more information about Battelle <http://www.battelle.org/>
PNNL <http://www.pnl.gov/> Ecology http://www.pnl.gov/ecology/

Sackschewsky, M. R. 2001. Personal communication from M. R. Sackschewsky, PNNL, to B. M. Barnes, Fluor Daniel Hanford, Inc., dated April 26, 2001 (letter).

Pacific Northwest National Laboratory
Operated by Battelle for the U.S. Department of Energy

April 26, 2001

Mr. Brett M. Barnes
Fluor Daniel Hanford, Inc.
P. O. Box 1000, MSIN T3-28
Richland, WA 99352

Dear Mr. Barnes:

BLANKET BIOLOGICAL REVIEW FOR GENERAL MAINTENANCE ACTIVITIES WITHIN ACTIVE BURIAL GROUNDS, 200 E and 200 W Areas, ECR #2001-200-048.

Project Description:

- General maintenance within the active burial grounds includes planting shallow rooted vegetation for erosion control, removal of deep-rooted vegetation, filling and compacting of subsidence areas, and repairing damage caused by wind or water erosion, animal burrowing, and insect intrusion. When soil is required for fill, it is usually obtained from spoil piles within the burial grounds.

- Active burial grounds covered by this blanket review (except where noted below) include: the 218-E-10 and 218-E-12B burial grounds in 200 East area, and the 218-W-3A, 218-W-3AE, 218-W4-B, 218-W-4C, 218-W-5, and 218-W-6 burial grounds in 200 West Area.

- Several areas are specifically NOT covered by this blanket review because they have not been developed for waste management purposes and they are dominated by native vegetation. Any disturbance within these areas will require a separate ecological review.

  Areas that are not covered by this review include:

  - The undeveloped portion of 218-W-4C (along 16th street, east of W77269)

  - The western half of the 218-W-6 burial ground, west of the existing power lines.

Survey Objectives:

- To determine the occurrence in the project area of plant and animal species protected under the Endangered Species Act (ESA), candidates for such protection, and species listed as threatened, endangered, candidate, sensitive, or monitor by the state of Washington, and species protected under the Migratory Bird Treaty Act,

- To evaluate the potential impacts of disturbance on priority habitats and protected plant and animal species identified in the survey.

Survey Methods:

- For most of the areas covered under this review, site access restrictions did not allow for pedestrian surveys within the burial grounds. Therefore, most of the information available

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for these sites was inferred from visual observations from the burial ground perimeters. The percent cover of dominant vegetation was visually estimated,

- The active burial grounds within the 200 East and 200 West Areas covered under this blanket review were surveyed by C. A. Duberstein and M. R. Sackschewsky on 23 April 2001.

- Priority habitats and species of concern are documented as such in the following: Washington Department of Fish and Wildlife (1994, 1996), Washington State Department of Natural Resources (1997), and for migratory birds, U.S. Fish and Wildlife Service (1985). Lists of animal and plant species considered Endangered, Threatened, Proposed, or Candidate by the USFWS are maintained at 50 CFR 17.11 and 50 CFR 17.12.

Survey Results:

- The southern portion of 218-E-10 Burial ground has been previously disturbed, and is dominated by cheatgrass (*Bromus tectorum*) and Sandberg's bluegrass (*Poa sandbergii*), with some planted crested wheatgrass (*Agropyron cristatum*). The entire E-10 burial ground has been mown / bush hogged and receives regular herbicide applications.

- The 218-E-12B burial ground has been previously disturbed and is presently dominated by cheatgrass, Sandberg's bluegrass, assorted weedy species, with some areas dominated by crested wheatgrass. In the undeveloped western part of the burial ground there are few remnant sagebrush and other native species that have recently been removed. However, most broadleaf plants have been eliminated by repeated herbicide applications over the last two years and overall plant cover on the active portions of the burial ground is very sparse.

- The 218-W-3A, 218-W-3AE, 218-W-4B, and 218-W-5 burial grounds are highly disturbed, with generally very sparse vegetation consisting of cheatgrass, Russian thistle (*Salsola kali*), and crested wheatgrass.

- Most of the developed portion of the 218-W-4C burial ground is highly disturbed with sparse cover of cheatgrass, however some portions of this burial ground presently have relatively thick stands of Indian ricegrass (*Oryopsis hymenoides*) and needle-and-thread grass (*Stipa comata.*).

- The majority of the eastern portion of the 218-W-6 burial ground has been previously disturbed and replanted to crested wheatgrass. A portion of the eastern (on the northern edge) and the entire western half of the burial ground have not been disturbed and are dominated by big sagebrush, spiny hopsage (*Grayia spinosa*), and Sandberg's bluegrass.

- Two Washington State Watch List plant species of concern are known to occur in some of the active burial grounds. The stalked-pod milkvetch (*Astragalus sclerocarpus*) has been observed within 218-W-4C and at the extreme western edge of the 218-W-5 burial ground, the crouching milkvetch (*Astraglaus succumbens*) has been observed on the south end of the 218-W-6 burial ground, within the Sub Reactor trench in 218-E-012B, and on the northeast side of 218-E-10.

- No migratory bird species were observed nesting within previously disturbed portions of the burial grounds covered by this review. However, given the size of the burial grounds, nesting by migratory birds should be expected. Species observed within the burial grounds during the field surveys included horned larks, Western meadowlarks, common ravens, Killdeer, and Long-Billed curlew; Say's Phoebes and American Robins have been documented during previous surveys of the active burial grounds. Two Kestrels were observed on the perimeter of the sub reactor trench and it is likely that they are nesting within the trench. Other birds are also likely to nest among the submarine reactor compartments..

Considerations and Recommendations:

- No plant and animal species protected under the ESA, candidates for such protection, or species listed by the Washington state government were observed in the vicinity of the proposed sites,

- Piper's daisy may still occur in some of the burial grounds. This is a Washington State Sensitive plant species, and as such is a Level III resource under the Hanford Site Biological Resources Management Plan (DOE/RL 2000). Compensatory mitigation is appropriate for this species when adverse impacts cannot be avoided. The ECAP staff should consulted prior to the initiation of major work activities within areas where this species has been identified (218-E-12, 218-E-10).

- The stalked-pod and crouching milkvetch are relatively common throughout 200 West area, therefore even if the few individuals within the active burial grounds are disturbed, it is not likely that the overall local population will be adversely affected. The Watch List is the lowest level of listing for plant species of concern in the State of Washington.

- No adverse impacts to species or habitats of concern are expected to occur from routine maintenance within the active portions of the 218-W-4C, 218-W-4B, 218-W-3, 218-W-3A, and 218-W-5 burial grounds, as well as the portion of 218-E-12B currently used for storage of retired submarine reactor cores.

- The remaining portions of the 218-E-12B burial ground, the entire 218-E-10 burial ground, and the 218-W-6 burial ground currently have extensive vegetative cover and it is highly likely that migratory birds, such as meadow larks, horned larks, and curlews will nest in these areas. Therefore, it is recommended that if removal of the existing vegetation is required for burial ground operations, such removal only occur during the August through March time period (i.e. when the birds are not actively nesting). If vegetation removal is required prior to August 1999 or after 1 April 2000, please contact the ECAP staff for an additional analysis to ensure compliance with the Migratory Bird Treaty Act.

- Workers should be advised to watch for nesting birds within the burial grounds, if any are encountered, please contact the ECAP staff for further evaluation.

- This blanket review does not apply to the portions of 218-W-4C, and 218-W-6 previously described.

- This Ecological Compliance Review is valid until 30 April 2002.

Sincerely,

Michael R. Sackschewsky
Ecological Compliance Assessment

CAB:mrs

REFERENCES

U. S. Department of Energy. 2000. Draft Hanford Site Biological Resources Management Plan. DOE-RL 96-32 Rev. 0.

U. S. Fish and Wildlife Service. 1985. Revised List of Migratory Birds; Final Rule. 50 FR 13708 (April 5, 1985).

Washington Department of Fish and Wildlife. 1994. Species of Special Concern in Washington. (April 1994).

Washington Department of Fish and Wildlife. 1996. Priority Habitats and Species List. (January 1996).

Washington Department of Natural Resources. 1997. Endangered, Threatened & Sensitive Vascular Plants of Washington (August 1997).

bcc: KF Clouse, FDH G1-30
PF Dunigan, RL A5-58
DC Ward, RL A2-15
ECAP/File/LB

Patrick Sobotta
Nez Perce Tribe
P.O. Box 365
Lapwai, ID 83540-0365

Tiller, B. L. 2000. Personal communication regarding wildlife on the Fitzner/Eberhardt Arid Lands Ecology Reserve.

April 2000

I spoke with Brett L. Tiller, a scientist for Pacific Northwest National Laboratory. He informed me that he has observed sage grouse in 1999 and 2000 on the Fitzner/Eberhardt Arid Lands Ecology Reserve.

Joanne Duncan
Science/Engineering Associate
Pacific Northwest National Laboratory

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MEMORANDUM

Date: April 17, 2001

To: Rayna Ummor, Battelle—Fax #: 509-372-4370

From: Hazel Batchelor, Director of Agency Relations

NUMBER OF PAGES (INCLUDING THIS ONE): 1

If you do not receive all the pages shown above, please contact us at (509) 782-4102.

Remarks: Enclosed is the information you requested for year 2000.

- Total budget for all United Way Participating Agencies: $27,043,144
- Number of United Way Participating Agencies: 21
- Number of Programs funded through Community Care Allocations: 38
- Number of organizations receiving donor designations in 2000 campaign: 572